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Implementing Evidence-based Opioid Prescription Practices In a Primary Care Setting

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IMPLEMENTING EVIDENCE-BASED OPIOID PRESCRIPTION PRACTICES IN A
PRIMARY CARE SETTING

by

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Abstract

The use and misuse of opioid pain medication has reached epidemic proportions in the United States. More than 16,000 people die each year due to the misuse or abuse of prescription opioid medications, which is more than from heroin, cocaine, and benzodiazepines combined. The purpose of this evidence-based practice project is to establish processes enabling a primary care clinic to implement and adhere to the 2016 Centers for Disease Control's guidelines for opioid prescription practices in the primary care setting. A retrospective chart review conducted prior to implementation of the guidelines demonstrated that four of six of the CDC's recommendations were in place. Following the Centers for Disease Control guidelines, a process was implemented to track evidence-based interventions including screening for potential abuse, urine drug screening, patient education, provider assessment of need, accessing the prescription drug monitoring program database, and the completion of a treatment agreement. Prior to implementation, a retrospective chart study revealed that none of the patients were screened for potential abuse, 80% had completed a treatment agreement, 90% had received education on opioid medication and potential abuse, 75% had undergone urine drug screening, 5% had the prescription drug monitoring program database accessed, and 95% had a documented provider assessment of need for treatment. At the completion of the project, 82% of patients were screened for potential abuse, 100% had completed a treatment agreement, 93% received education on opioid abuse, 93% underwent urine drug screening, 68% had the prescription drug monitoring program database accessed, and 96% had a documented provider assessment of need. The implementation of these guidelines has led to 11 (7%) patients being referred to a pain

management specialist and a 10% reduction in the number of prescriptions written for opioid pain medications for patients seeking treatment for chronic pain.

Key words: Opioids; Primary Care; Chronic Non Cancer Pain; Prescription Drug Monitoring; Guidelines

Opioid prescription drug misuse has reached epidemic proportions in the United States. Currently more people are killed overdosing on prescription opioid medications, than are killed from heroin, cocaine, and benzodiazepines combined (Hawk, Vaca, & D’Onofrio, 2015; Chen et al., 2016). In 2001, the Joint Commission established that pain was being undertreated and this, as well as other factors, led to opioid pain medications being prescribed at alarming rates (Broglia & Cole, 2014). The unintended consequences of the vast number of opioid prescriptions being written include diversion, misuse, and abuse (Chen et al., 2016).

The costs to society in terms of dollars for lost productivity, losses due to crime, law enforcement, and healthcare costs, exceed 400 billion annually (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016). Implementation of evidence-based guidelines can help reduce the incidence of abuse and the risk of overdose, and may lead to alternative medications and interventions for pain control.

Statement of the Problem

Each year over 100 million Americans will present to their primary care provider with a complaint of pain, both chronic and acute (Compton, Boyle, & Wargo, 2015), while over 1,000 people each day will seek treatment in an emergency room for misusing prescription opioid medications (SAMHSA, 2013). Chronic pain differs from acute pain and affects quality of life and results in financial costs in excess of \$560 billion annually for society in terms of lost wages, healthcare costs, and lost productivity (Broglia & Cole, 2014; SAMHSA, 2016)). These patients are complex and present with multiple medical and psychiatric comorbidities in addition to their complaint of chronic non-cancer pain (CNCP) (Cheatle & Barker, 2014). Approximately 3.5% of the adult population in the United States is prescribed opioid medications to treat CNCP (Dowell, Haegerich, & Chou, 2016). Management of patients with CNCP is made more difficult

because many providers do not have the training or tools needed to handle these complex patients (Broglia & Cole, 2014). More than 16,000 people die each year (more than 43 per day), due to the misuse or abuse of prescription opioid medications (Hawk et al, 2015; American Public Health Association [APHA], 2015).

Assessment

A retrospective chart review of 157 adult patients diagnosed with chronic pain and receiving opioid pain medications at the primary care clinic between January 1, 2017 and March 24, 2017 was conducted. This chart review demonstrated that 23% of the clinic patients being prescribed opioid pain medication for CNCP were between 18 and 44 years of age, 55% were between 45 and 64 years of age, and 22% were 65 years old or greater. These patients were 52% male and 48% female and had an ethnic background of 20% Hispanic, 73% White non-Hispanic, and 7% other. Patients with CNCP are more likely to have multiple chronic conditions (Cheatle & Barker, 2014). In the pre-intervention assessment, 30% of the patients had one to three chronic conditions, 50% were diagnosed with four to six chronic conditions, and 20% had seven or more chronic conditions in addition to chronic pain (Table 1). The top chronic conditions for patients in the pre-intervention chart review were; insomnia 37%, anxiety 48%, hypertension 42%, hyperlipidemia 37%, constipation 31%, depression 20%, and ADHD 25% (Table 1). The current practice in the clinic when prescribing opioid pain medications for patients with CNCP was to obtain a treatment agreement, perform a urine drug screen, and educate patients on risks and benefits of opioid pain medications. While these practices are included in the 2016 Centers for Disease Control (CDC) guidelines for prescribing opioid medications for CNCP, several additional practices needed to be added to the prescription process to be in compliance with the recommendations including accessing the prescription drug-monitoring program (PDMP)

database and screening for potential abuse. The clinic did not have a protocol or procedure to ensure that all 2016 CDC guidelines were followed when prescribing opioid pain medications.

Table 1

Characteristics of Pre-intervention Patient Population

Category	Percentage
Sex	
Male	52%
Female	48%
Race	
Caucasian non-Hispanic	73%
Hispanic	20%
Other	7%
Age	
18-44	23%
45-64	55%
65 and older	22%
Number of Chronic Conditions	
1-3	30%
4-6	50%
7 or more	20%
Top Chronic Conditions	
Hypertension	42%
Hyperlipidemia	37%
Constipation	31%
ADHD	25%
Depression	20%
Insomnia	38%

Readiness for Change

A review of the 2016 CDC guidelines, current literature on the opioid prescription medication epidemic, and the March 2017 retrospective chart review was shared with key providers and resulted in a determination that the clinic was not aligned with the 2016 CDC guidelines for prescribing opioid medications for CNCP. Prior to this review of the guidelines and current literature, the clinicians and staff were unaware of the magnitude of morbidity and mortality risk associated with prescription opioid misuse or abuse. Following this review of the guidelines and the needs assessment, it was determined that an evidence-based project would be implemented to help align the practice with all 2016 CDC guidelines for prescribing opioid medications for CNCP. The available resources of the clinic were able to support this process improvement project through the use of technology, training, space, and leadership.

Project Aim

The aim of this evidence-based practice project was to improve clinicians' adherence to the 2016 CDC guidelines on prescribing opioid pain medications for CNCP. The CDC guidelines include assessment for need of opioid pain medication need, accessing the Prescription Drug Monitoring Program (PDMP) database, completion of a treatment agreement that establishes goals and ground rules, use of a screening tool to assess for potential misuse or abuse of medications, screening urine for drugs, and patient education on opioid medications. The objective of this evidence-based quality improvement project was to ensure adherence to the guidelines to improve the quality of care patients receive.

To achieve the outlined objectives, the clinic implemented urine drug screening in patients receiving opioid medications for CNCP, performed patient self screening with the Screener and Opioid Assessment for Patients with Pain (SOAPP) Version 1.0-SF for abuse

potential, checked the PDMP database, completed a treatment agreement, and received education on opioid medications as outlined in the 2016 CDC guidelines (SOAPP, 2008). As a result of implementing the CDC guidelines and improved prescription practices, the clinic identified patients needing referral to a pain management clinic for treatment of their CNCP.

Summary and Strength of the Evidence

Prescription drug misuse and abuse is a growing problem in the United States. Nearly 100 million Americans present to their primary care physician with a complaint of chronic pain (Compton et al., 2015) and it is estimated that 25.3 million adults suffer from chronic pain on a daily basis (Philpot et al., 2017). Patients with CNCP are complex and present with multiple medical and psychiatric comorbidities in the primary care setting (Cheatle & Barker, 2014). Multiple comorbidities accompanied by chronic pain can make management of these patients difficult in the primary care setting. Primary care providers are the dominant prescribers of opioid pain medication for patients with CNCP, with more than 200 million prescriptions being written annually (Broglia & Cole, 2014). In fact, primary care providers account for half of all opioid prescriptions in the United States (Dowell et al., 2016). The massive prescribing of opioid medications for pain has been associated with the unintended consequence of misuse and abuse and associated morbidity and mortality (Broglia & Cole, 2014). Between 1999 and 2010, fatal overdoses from opioid medications soared from 4,000 deaths to more than 16,000 annually (Hawk et al., 2015). Since 2010 prescription opioid medications have caused more overdose deaths than heroin and cocaine combined (APHA, 2015).

The CDC recommends that all patients being treated for CNCP receive a complete assessment by a provider and complete a risk assessment that scores the patient's potential for misuse and abuse of opioid medications (Dowell et al., 2016). In addition, the CDC guidelines

recommend urine drug screening, patient education, and the completion of a treatment agreement prior to prescribing opioid pain medications for CNCP (Dowell et al., 2016). Accessing the PDMP database is also highly recommended as a best practice to determine if patients are physician shopping or filling prescriptions at multiple pharmacies (Dowell et al., 2016).

A comprehensive assessment of the patient is the first step in determining if opioid medications are needed to treat the patient. Effects on quality of life, such as sleep, relationships, activity level and emotions, as well as the quality of the pain along with aggravating or alleviating factors involved should be documented as part of the assessment (Broglia & Cole, 2014). A thorough assessment can help to determine if the pain is nociceptive or neuropathic, which will help determine the correct treatment regimen (Broglia & Cole, 2014). In addition to a thorough provider assessment, the patient should complete a questionnaire that identifies the potential for abuse or misuse of opioid medications. The Screener and Opioid Assessment for Patients with Pain (SOAPP) version 1.0-SF is a tool for providers that can help determine patient potential for abuse or misuse of opioid medication and helps determine how much monitoring a patient on long-term opioid medication therapy might require (Screener and opioid assessment for patients with pain [SOAPP], 2008). The SOAPP is a 5-question tool that with a sensitivity of 0.86 and a specificity of 0.67 indicating efficacy at identifying those at high risk for abuse, but might include some who are truly low risk in the high risk category (SOAPP, 2008).

Information gained from the PDMP database can be invaluable in identifying those with a high potential for abuse or misuse of opioid pain medications. Each PDMP database is maintained individually by each state. The state regulatory agency that oversees pharmacists administers the Texas PDMP. PDMP links clinicians to databases that help detect problem users, diverters, and doctor shoppers (Compton et al., 2015). Use of PDMP leads to lower prescription

rates and reduced rates of opioid poisoning (Haegerich, Paulozzi, Manns, & Jones, 2014). PDMP databases are not a complete solution to the opioid pain medication misuse epidemic, they are an important yet underutilized tool that has the potential to help save lives.

Urine drug screening is used to identify non-compliance, potential drug diversion, and patient use of other drugs not currently prescribed (Volkow & McLellan, 2016). Urine drug testing is the only objective measure to ensure the patient is taking the prescribed medication and not taking illicit drugs or medications not prescribed (Broglia & Cole, 2014). The provider needs to understand the capabilities and limitations of urine drug testing and tailor testing to meet the needs of the patient and the situation, taking into account insurance coverage, results of previous tests, and results of other tools used in the assessment of patients on opioid therapy for CNCP (Broglia & Cole, 2014). At a minimum, random urine drug testing should happen un-announced at least yearly, with additional testing taking place more often if the need for tighter oversight is determined (Broglia & Cole, 2014; Dowell et al., 2016).

Informed consent and treatment agreements should be obtained prior to initiation of opioid pain medication therapy for CNCP. Informed consent should outline the risks and benefits of therapy, while the agreement should outline expectations for continued treatment at the clinic (Nuckols et al., 2014). Safe use, disposal, pharmacy use, storage, disposal, and responsibilities of the patient and provider should be addressed in any treatment agreement and discussed (Broglia & Cole, 2014). Finally, education of the patient should take place to ensure complete understanding of the reason for the opioid as well as the risks and benefits of opioid use. Education topics should include multimodal therapy to reduce opioid use, improve pain control, and enhance quality of life (Broglia & Cole, 2014). One-page handouts that discuss safe use,

storage, disposal, and have a complete description of goals and expectations of pain management should be provided to each patient (Broglio & Cole, 2014; Dowell et al., 2016).

Methods

Project Intervention

The setting for the project was a privately owned internal medicine practice located in North Central San Antonio, Texas. The physician owner and 2 nurse practitioners staff the practice. The providers currently serve 9,500 patients per year with 462 patients presenting with complaints of chronic pain. Between January 1, 2017 and March 24, 2017, 157 patients were treated for CNCP in the clinic. These 157 patients created 236 visits to the clinic between January 1, 2017 and March 24, 2017. Of the 157 patients with CNCP; 23% were between 18 and 44 years of age, 55% were between 45 and 64 years of age, and 22% were 65 years old or greater. The ethnic division of these patients was 20% Hispanic, 73% White non-Hispanic, and 7% other. In addition, 52% were male and 48% female. All patients and staff are primarily English speaking with only one staff member fluent in Spanish.

The current practice in the clinic when prescribing opioid pain medications for patients with CNCP was to obtain a treatment agreement, perform a urine drug screen, and educate patients on risks and benefits of opioid pain medications. While these practices are included in the 2016 Centers for Disease Control (CDC) (Dowell et al., 2016) guidelines for prescribing opioid medications for CNCP, several additional practices needed to be added to the prescription process to be in compliance with the guidelines. The clinic did not have a protocol or procedure to ensure that all 2016 CDC guidelines were followed when prescribing opioid pain medications.

A pre-intervention chart audit was performed on 157 adult patients who had a diagnosis of chronic pain and received opioid pain medications from the clinic between January 1, 2017

and March 31, 2017. Data analysis, using IBM® SPSS® version 24, revealed that 95% of patients received a provider assessment, 80% had completed a treatment agreement, 75% had undergone urine drug screening prior to receiving the prescription, 90% had received education on opioid medications, 5% had accessed the PDMP database, and none of the patients had completed a screening tool (Table 3).

Pre-intervention activities included an information fair held in conjunction with a staff lunch, training sessions, several quality meetings, and one on one informational sessions with each staff member. Providers were given an application that could be installed on their smart phone that included the guidelines, dosage calculations, and helpful information for prescribing opioid medications. Providers were encouraged to complete an online training session provided by the CDC that included information on best practices, the guidelines, preventing abuse, and misuse of opioid medications. This online program was free of charge. Each staff member and provider was provided with a copy of the current CDC guidelines, a copy of the screening tool and instructions on how to score the tool, and a copy of the educational flyer provided by the CDC at no charge. An interactive education session was conducted with all staff members and providers to discuss the roles and responsibilities of each person during implementation of the clinic's opioid prescription practices. In addition, a meeting with providers was held to help them register for access and learn how to use the PDMP database. Additional duties had to be performed by different team members ensuring a successful implementation (Table 2).

The MAs now had additional responsibilities to ensure urine was collected on each patient for testing, the screening tool was completed and placed on the chart for review by the provider, the treatment agreement was completed and placed on the chart for review by the provider, and to attend all quality meetings. The providers' additional responsibilities included

Table 2

Roles and Responsibilities

Intervention	Responsible Party
Staff Education	Project Leader
Education Pamphlet	Project Leader
Standing Orders	Physician Owner
Patient Assessments	Providers
Screening Tool (SOAPP) version 1.0-SF	MA's, reviewed by Provider
PDMP Database	Provider
Drug Screening	MA's
Treatment Agreement	MA's, reviewed by Provider
Quality Meetings	Project Leader

completing a needs assessments, completing physical and medical assessments of the patient, accessing the PDMP, reviewing the screening tool and treatment agreement, and attending all quality meetings. The project leader conducted staff education and provider education, held quality meetings, disseminated information for all staff, and tracked adherence.

Upon evidence-based practice implementation, each patient presenting to the clinic with a diagnosis of chronic pain received a treatment agreement form and screening tool form from the receptionist. The receptionist instructed the patient to complete the treatment agreement and screening tool while waiting to be taken back to the exam room. The MA called the patient back and escorted them to the restroom where the patient provided a urine sample to undergo drug screening to assess for compliance or abuse of other substances. The MA then escorted the

patient to the exam room and started the intake process. The provider completed a comprehensive assessment of the patient and their pain. This assessment was documented in the Aprima® electronic medical record (EMR). The provider also accessed the PDMP to assess for frequency of prescriptions, prescriptions from other providers, and to determine if other controlled substances were currently being prescribed. The provider reviewed the screening tool and initialed indicating review, reviewed the treatment agreement and initialed indicating review, and provided education on opioid medications. All of this was documented by scanning into the EMR or physically entered into the EMR. The provider then prescribed the best treatment indicated for the patient.

Table 3

Project Objectives

Intervention	Current Adherence	Anticipated Adherence
Provider Assessment of Need	95%	95%
Screening Tool	0%	80%
Education	90%	90%
Access PDMP	5%	80%
Treatment Agreement	80%	80%
Urine Drug Screen	75%	80%

Barriers and Facilitators

The clinic faced many challenges prior to implementation of the new process. Barriers included poor communication from providers to staff on expectations as most communication happened in an informal way that could be ambiguous and confusing. Provider resistance was

another barrier; change and new processes can be uncomfortable. In addition, familiarity with the patients posed a barrier to utilization of the PDMP. A common theme in not accessing the PDMP was “I know my patient so I do not need to look at that.” Patient resistance to undergoing additional testing that might or might not be covered by insurance, additional forms to fill out, and the general anxiety that comes from lab tests created a barrier to implementation. Finally, the potential for lost income due to patients seeking treatment elsewhere is a barrier that could have caused problems with implementation.

Facilitators included the physician owner who was committed to the project and wanted the clinic to adhere to best practices. The staff were great facilitators due to low turnover and the relationships they had with the patients of the clinic. The CDC guidelines set clear standards and recommendations that would not add additional cost to clinic operations. Another factor that helped facilitate implementation was the amount of news pertaining to the topic of misuse and abuse of opioid prescription medications, including an article on a provider who was charged with 5 counts of murder for over prescribing opioid medications (“Doctor charged with murder,” 2017). Sharing current stories on the costs associated with opioid medications helped to motivate the staff and providers to ensure best practices. Finally, the clinic already was doing several of the interventions contained in the guidelines; therefore adding two more interventions was not an undue burden to the system.

Results

150 unique patients were seen during the 10 weeks of project implementation who presented with a diagnosis of chronic pain resulting in 222 total visits. Of these patient visits 210 (96%) were assessed by the provider, 186 (84%) completed a screening tool, 207 (93%) underwent urine drug screening, 222 (100%) completed a treatment agreement, 207 (93%)

received education material on opioid medications, and 154 (69%) had the PDMP database accessed prior to prescribing opioid medication; this compares to the pre-intervention group of patients, consisting of 236 total visits and 157 unique patients, who were assessed by the provider 225 (95%), completed the screening tool 0 (0%), completed a urine drug screen 177 (75%), completed a treatment agreement 189 (80%), received education on opioid medications 213 (90%), and had the PDMP accessed to check for previous opioid prescriptions 12 (5%) (Figure 1).

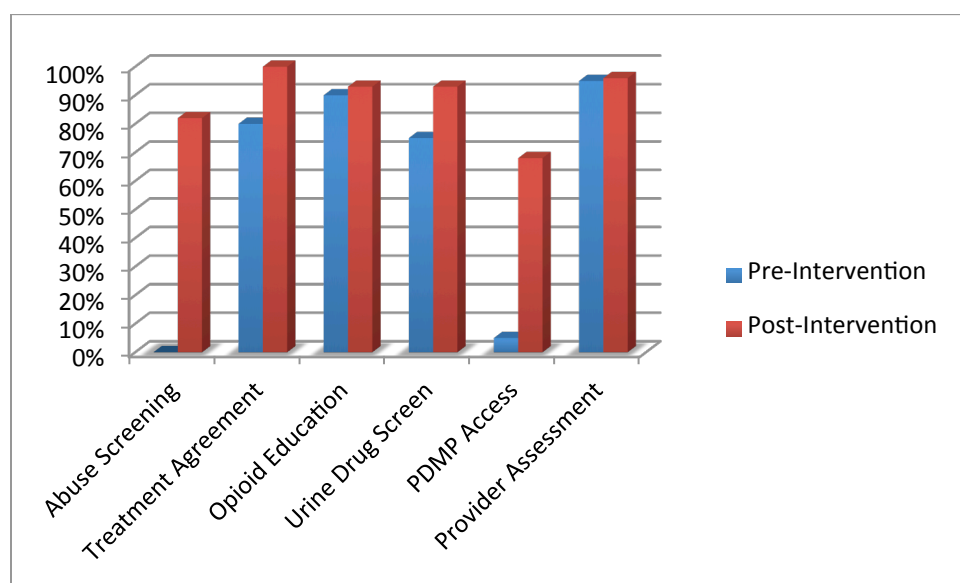


Figure 1. Pre- and post-intervention utilization of CDC's guidelines.

A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the relationship between implementation of all six CDC guidelines and referral to a pain management specialist for treatment of CNCP. Applying Fisher's exact test, the number of patients referred to pain management are significantly higher ($p = .001$) when all six CDC guidelines are used (Table 4). The results are statistically significant when $p < .005$.

Table 4

Fisher's Exact Test: Relationship Between Implementation of All Six of the CDC Guidelines and Referral to Pain Management

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	12.473	1	.001		
Likelihood Ratio	11.657	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	12.446	1	.000		
N of Valid Cases	458				

Note. a. Computed only for a 2x2 table

A chi-square test of independence was performed, including both pre-intervention and post-intervention data, to examine the relationship between implementation of CDC guidelines and the number of opioid pain medication prescriptions being written for treatment of CNCP.

The relationship between these variables was significant, $\chi^2(1, 458) = 38.11, p < .05$ (Table 5).

Utilization of all tools recommended by the CDC increased on subsequent visits for five of the six tools. Use of the screening tool went from 81% on the first visit post-intervention to 88% by the third visit, use of the treatment agreement stayed at 100% from the first visit post-intervention to the third visit post-intervention, use of the educational handout went from 92% from the first visit post-intervention to 100% by the third visit post-intervention, utilization of urine drug screening went from 91% on the first visit post-intervention to 98% by the third visit post-intervention and documentation of provider assessment of need increased from 92% on the first visit post-intervention to 100% by the third visit post-intervention. Accessing the PDMP

Table 5

Chi-square: Relationship Between Implementation of All Six of the CDC Guidelines and Number of Opioid Prescriptions Written

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Pearson Chi-Square	38.109 ^a	1	.000*		
Continuity Correction ^b	35.342	1	.000		
Likelihood Ratio	37.094	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	38.026	1	.000		
N of Valid Cases	458				

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.34.

b. Computed only for a 2x2 table

* Statistically significant when $p < .05$

decreased from 73% on the first visit post-intervention to 41% by the third visit post-intervention. Reported reasons for this decrease in accessing the PDMP included:

- “I know this patient.”
- “I did not have time.”
- “I did not think it was necessary.”

Accessing the PDMP and having the patient fill out the screening tool for potential abuse proved to have significance in determining which patients received opioid pain medications and which were referred to pain management, while use of the urine drug screen was significant for deciding on giving a prescription for opioid pain medications. A chi-square test of independence was performed, including both pre-intervention and post-intervention data, to examine the

relationship between utilization of PDMP and the number of opioid pain medication prescriptions being written for treatment of CNCP. The relationship between these variables was significant, $\chi^2(1, 458) = 31.77, p < .05$ (Table 6).

Table 6

Chi-square: Relationship Between Utilization of the PDMP and Receiving an Opioid Medication Prescription

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Pearson Chi-Square	31.770 ^a	1	.000*		
Continuity Correction ^b	29.311	1	.000		
Likelihood Ratio	32.450	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	31.700	1	.000		
N of Valid Cases	458				

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.34.

b. Computed only for a 2x2 table

* Statistically significant when $p < .05$

Use of PDMPs leads to lower opioid prescription rates, decreases provider shopping, and reduces rates of opioid poisoning (Compton et al., 2015, Dowell et al., 2016). A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the relationship between accessing the PDMP and referral to a pain management specialist for treatment of CNCP. Applying Fisher's exact test, the number of patients referred to pain management are significantly higher ($p = .002$) when PDMP is accessed (Table 7). The results are considered significant when $p < .005$.

Table 7

Fisher's Exact Test: Relationship Between Utilization of the PDMP and Referral to Pain Management for treatment of CNCP.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	8.120	1	.004		
Likelihood Ratio	9.882	1	.002		
Fishers Exact Test				.002	.002
Linear-by-Linear Association	10.108	1	.001		
N of Valid Cases	458				

Note. a. Computed only for a 2x2 table

A chi-square test of independence was performed, including both pre-intervention and post-intervention data, to examine the relationship between utilization of the screening tool and the number of opioid pain medication prescriptions being written for treatment of CNCP. The relationship between these variables was significant, $\chi^2(1, 458) = 35.41, p < .05$ (Table 8).

A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the relationship between utilization of the screening tool and referral to a pain management specialist for treatment of CNCP. Applying Fishers exact test, the number of patients referred to pain management are significantly higher ($p = .000$) when the screening tool is accessed (Table 9). The results are considered significant when $p < .005$.

Table 8

Chi-square: Relationship Between Utilization of the Screening Tool and Receiving an Opioid Medication Prescription.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Pearson Chi-Square	35.413 ^a	1	.000*		
Continuity Correction ^b	32.868	1	.000		
Likelihood Ratio	43.246	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	35.335	1	.000		
N of Valid Cases	458				

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.34.

b. Computed only for a 2x2 table

* Statistically significant when $p < .05$

Table 9

Fisher's Exact Test: Relationship Between Utilization of the Screening Tool and Referral to Pain

Management for treatment of CNCP.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	14.055	1	.000		
Likelihood Ratio	20.222	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.446	1	.000		
N of Valid Cases	458				

Note. a. Computed only for a 2x2 table

Urine drug screening can provide information on drug use not reported by patients and can also help to identify those patients who are potentially diverting drugs (Volkow & McLellan, 2016). A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the relationship between utilization of urine drug screening and receiving an opioid medication prescription for treatment of CNCP. Applying Fishers exact test, the number of patients who received pain medication were significantly higher ($p = .036$) when the screening tool is accessed (Table 10). The results are considered significant when $p < .005$.

Table 10

Fisher's Exact Test: Relationship Between Utilization of Urine Drug Screening and Receiving an Opioid Medication Prescription.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	3.495	1	.062		
Likelihood Ratio	8.338	1	.004		
Fisher's Exact Test				.036	.016
Linear-by-Linear Association	4.656	1	.031		
N of Valid Cases	458				

Note. A. Computed only for a 2x2 table

While these tools were significant in the relationship between determining which patients were referred to pain management and which received prescriptions for opioid medications, one co-morbid condition stands out as significant in determining which patients were referred to pain management and which received a prescription for opioid pain medication. A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the

relationship between depression and referral to pain management for treatment of CNCP.

Applying Fishers exact test, the number of patients who were referred to pain management was significantly higher ($p = .036$) when a diagnosis of depression is also present (Table 11). The results are considered significant when $p < .005$.

Table 11

Fisher's Exact Test: Relationship Between Depression and Referral to Pain Management for Treatment of CNCP.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	3.725	1	.054		
Likelihood Ratio	4.278	1	.039		
Fishers Exact Test				.036	.036
Linear-by-Linear Association	5.382	1	.020		
N of Valid Cases	458				

Note. a. Computed only for a 2x2 table

Depression and post-traumatic stress disorder have been found to be prevalent in patients seeking treatment for pain (Seal, Becker, Tighe, Li, & Rife, 2017). A Fisher's exact test was performed, including both pre-intervention and post-intervention data, to examine the relationship between depression and receiving an opioid medication prescription for treatment of CNCP. Applying Fishers exact test, the number of patients who received pain medication and were diagnosed with depression were significantly higher ($p = .023$) when also diagnosed with depression (Table 12). The results are considered significant when $p < .005$.

Table 12

Fisher's Exact Test: Relationship Between Depression and Receiving an Opioid Medication Prescription.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig (1-sided)
Continuity Correction ^a	5.423	1	.020		
Likelihood Ratio	5.621	1	.018		
Fishers Exact Test				.023	.015
Linear-by-Linear	6.765	1	.009		
Association					
N of Valid Cases	458				

Note. a. Computed only for a 2x2 table

Discussion

Implementation of the full guidelines had significant impact on the number of prescriptions written for opioid pain medications for patients seeking treatment for CNCP and also impacted the number of patients referred to a pain management specialist for treatment of CNCP. Increases in treatment agreements from 80% of patients to 100% of patients, urine drug screens from 75% of patients to 93% of patients, screening tools for potential abuse from 0% of patients to 84% of patients, a documented provider assessment from 95% of patients to 96% of patients, accessing the PDMP from 5% of patients to 69% of patients, and documentation of education from 90% of patients to 93% of patients resulted in 11 patients (7%) being referred to pain management and also resulted in 23 prescriptions (10%) not being written for opioids for CNCP. No studies have been identified that tested the validity of use of all six interventions contained in the CCD guidelines. In a study by Chen et al. (2016), the number of prescriptions

written for opioids for the treatment of CNCP decreased by 12.9% in a primary care clinic in the San Francisco Bay Area after implementing several of the tools recommended by the CDC. The study by Chen et al. (2016), had a patient population of 54% male, 50% White, 23% Asian, and 4% Black. This compares to the clinic in San Antonio which was 52% male, 73% White non-Hispanic, 20% Hispanic, and 7% Black. Chen et al. (2016), found that disseminating the CDC guidelines to providers had significant impact on the number of urine drug screens ordered.

While many of the goals were achieved, the goal of accessing the PDMP at least 80% of the time was not achieved. The providers at the clinic only accessed the PDMP 69% of the time it was indicated. Reasons providers expressed for not accessing the PDMP included not “having time,” “thinking it was not necessary, ” and “I know my patient.” These same reasons are detailed in a qualitative study discussing how primary care physicians decide when to prescribe opioids. The study by Harle et al. (2015) demonstrated that trust and familiarity were key determinates whether a provider wrote a prescription for opioid medications. In this study, the researcher found that the more often the patient visited a provider for chronic pain, the less likely the provider would access the PDMP. On the first visit post-intervention implementation, 73% of patients had the PDMP accessed to determine the frequency of opioid prescriptions, by the third visit of these patients, just 41% had the PDMP accessed.

Depression was prevalent in 20% of the patients seeking treatment for CNCP (Table 1) and had significant influence on if that patient was referred to pain management or received a prescription for opioid medication (Tables 11 & 12). Depression and post-traumatic stress disorder were found to be prevalent in a group of patients seeking treatment at the Veterans Administration facility in San Francisco (Seal, Becker, Tighe, Li, & Rife, 2017), while in a study

conducted at the Mayo Clinic by Philpot et al. (2017) found depression to be prevalent in 36% of patients receiving opioids for treatment of CNCP.

Full implementation of the CDC guidelines would not have happened without the commitment of the entire team working at the clinic. Both providers and medical assistants increased communication between themselves and the patients on the needs, dangers, and good stewardship required of prescribing opioid medications. The medical assistants proved instrumental in making sure all forms were utilized, urine drug screens were done, and that patients received the educational flyer. The providers were responsible for reviewing the screening tool and treatment agreement, documenting an assessment of need, accessing the PDMP, and interpreting the urine drug screens. During one on one meetings with the providers, and bi-weekly meetings with all staff, reminders were given to all about the need for following the guidelines and use of all the tools available to ensure adherence. These meetings served as motivation for continued improvement and facilitated real-time feedback on progress and hurdles being encountered.

Limitations

This study was conducted over a relatively short period, 10 weeks does not give adequate time to implement a set of interventions and adequately allow for the learning curve that accompanies any new initiative. A longer study period may have increased compliance even more and resulted in even fewer prescriptions being written or more patients being referred to pain management.

In addition, the racial breakdown of the patient population does not reflect that of society as a whole. With 73% of the patient population being White non-Hispanic, it missed many potential patients who belong to marginalized, vulnerable, or underserved populations. This

evidence-based practice project was based in one clinic in Northern San Antonio, Texas and was limited in its reach to diverse areas or populations.

Recommendations

Pre-intervention data showed the clinic was well behind in the full implementation of the CDC's guidelines for prescribing opioid medications for CNCP indicating a need for an evidence-based practice improvement project to improve prescription practices of opioids in the primary care setting. Some interventions in the CDC's guidelines were already in practice at the clinic, two of the recommended interventions were either not used or were infrequently used. Further investigation into resistance to access the PDMP needs to be explored. This tool shows high significance in determining if a patient should be referred to pain management or if they should be given a prescription for an opioid pain medication (Tables 6 & 7).

Implications for Practice

Treating patients with CNCP has many challenges and potential pitfalls. This project has many implications to help identify patients with chronic pain, determine the appropriate treatment location, and reduce the number of opioid pain medication prescriptions written that may be inappropriate. With over 16,000 deaths each year from the misuse of prescription opioid medications, these interventions need to be implemented to protect patients from unneeded opioid medications.

While this project was implemented in an internal medicine practice setting and focused on adults seeking treatment for chronic pain, these interventions and guidelines could be implemented in a host of specialty settings where patients might have complaints of chronic pain. Advanced Practice Registered Nurses trained at the Doctoral level possess unique clinical and leadership skills that allows implementation of evidence gained through research.

Conclusion

The use and misuse of opioid pain medication has reached epidemic proportions in the United States. More than 16,000 people die each year due to the misuse or abuse of prescription opioid medications, which is more than from heroin, cocaine, and benzodiazepines combined. The purpose of this evidence-based practice project was to establish processes enabling a primary care clinic to implement and adhere to the 2016 Centers for Disease Control's guidelines for opioid prescription practices in the primary care setting.

Implementation of the CDC's 2016 guidelines, led to an increase in: proper screening of patients seeking treatment for CNCP (84%), a complete assessment of patients seeking treatment for CNCP (96%), a thorough education of patients being treated for CNCP (93%), providers accessing the PDMP (69%), performing urine drug screens to assess patients for compliance (93%), and having the patient complete a treatment agreement (100%). The implementation of these guidelines has led to 11 (7%) patients referred to a pain management specialist and a 10% reduction in the number of prescriptions written for opioid pain medications for patients seeking treatment for chronic pain.

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